

artificial food. Any practical dairyman will at once admit that for a milch-cow grass is the best food. Indeed, nothing is so healthful and beneficial for cow-life, or so good for enabling the animal to yield her maximum of milk, as a good variety of grasses. All these conditions, so needful for the welfare of the industry, are in abundance in New Zealand, and can, I think, be greatly added to at a nominal cost.

The factory buildings, on the whole, are perhaps not deserving of much praise. Nearly every one I have visited is out of proportion to its requirements, and a great deal of unnecessary expenditure at the outset of their business has been entailed on the various companies. Again, in their construction economical working of the factories has not been constantly kept in view. The unnecessary expenditure thus incurred in every instance (some of the buildings and plant having cost as much as £2,500) has prevented the dairy-factory system from taking root in many districts. Besides, it has seriously retarded the financial success of many in operation. The cost of constructing a cheese-factory with complete plant for the manipulation of, say, 1,400 gallons of milk daily, should not exceed £550 to £650, according to the facilities for obtaining the necessary building-material. In every district I have visited with the intention of starting the factory system, the complaint has been against the cost of buildings and the necessary plant. During the season I have succeeded in starting the factory method in the Owaka District, Catlin's River, from which I hope the farmers of that district may reap a rich harvest. This factory is now in course of construction on plans suggested by me. It is capable of manipulating from 1,400 to 1,600 gallons of milk daily. In this building a cheese-factory and creamery are combined. The estimated cost of the building, including both cheese and butter plant, is £800. Had a building and plant been erected for the manufacture of cheese only, the cost would not have exceeded £550. A common fault at the outset in construction of most of the dairy factories has been the selecting of an unsuitable site. Instead of their being set on high and dry ground, to insure purity of atmosphere and the conducting of all refuse matter to a safe distance, they are in general placed in low-lying, damp ground, with imperfect drainage. Around the buildings of many factories which I have visited it has been too common an occurrence in reaching the entrance-door to have to go through several inches of mire. Too much care cannot be taken in the drainage from factories. On several occasions, while standing at the door of these establishments, I have felt many objectionable odours arising from imperfect drainage, on account of coagulated milk and other matters settling in the open channels. Besides, in nearly every instance I found the piggeries in far too close proximity to the cheese-making department. It seems to have been forgotten that any harm could be done by the odour arising from them. To the internal construction of the factories visited I have one or two objections. The making-room and curing-room should always be on the same flat. Cheese cured in a room directly above the manufacturing-room are liable to suffer serious harm, on the one hand, from the heat, steam, and odour from below, and, on the other, from the excessive heat of the sun on the iron roof. Imperfect ventilation is far too common in most of the factories, and no provision has been made for the control of temperature. In fact, in several factories visited the walls in the making-room were so open that one could almost anywhere see through them. There may be days when cheese or butter of first-class quality can be made in such a building; but in nine cases out of ten the operation is a failure. This is a matter which struck me forcibly. When, however, I explained to the makers the difficulties under which they were labouring, they seemed not fully to appreciate the importance of a warm temperature in the making-room. I have seen many cheeses spoiled in the manufacture through draughts of cold air being caused by the imperfect construction of the buildings. A making-room should be well constructed. A temperature of at least 75° should be maintained during the process of manufacture, so as to protect the surface of the milk and curd from the influence of cold.

Too much care cannot be exercised in the use of rennet, the second natural agent employed in the conversion of milk into cheese. The reason for adding rennet to milk is not only to cause the coagulation of the caseine, but to carry forward the curd into that state which we call cheese. During my visit to the dairy factories of the South I found in many cases a lack of sufficient knowledge in the use of this essential agent in the manufacture. In six of the factories visited I found the rennet used in a complete state of putrefaction. In other bad cases sour whey was mixed with the rennet-extract—a highly injurious and unscientific practice. The fact that a larger quantity would hasten the cheese faster to maturity and decay than a less quantity seemed to be among the mysteries of the business. It is true that rennet creates texture in cheese, and that upon the quality and quantity of the rennet used greatly depend the flavour and keeping-qualities of the product. Considering these points, it cannot be expected, if a quantity of impure rennet is added to milk, and so carried forward into the body of the cheese to produce its illegitimate effects, that a fine-flavoured and good-keeping quality of product will be the result.

I might now introduce a few remarks on the general quality of New Zealand cheese as at present manufactured. In the keen fight for supremacy in the Home market, quality is the essential condition to success. At present it must be said that the New Zealand product in this respect is behind. As the quantity can be almost indefinitely increased, it is to the quality we must look to establish our name and market at Home and procure for us the payable price so much needed; for, unless prices are to rule higher than hitherto, milk must be brought to the factories at the utterly unpayable price to the settler of about 2½d. per gallon. No doubt, cheese of the finest quality has on occasions been produced at almost all the factories in the South Island, but for the most part this has been the exception, the generally poor quality of the product swallowing up all the good fortune of these successful occasions. There are, however, six factories in the South Island the products of which have on several occasions been pronounced first-class. In the Australian market the cheese of some of those mentioned have this very season, despite the dull market, commanded a price ranging from 4½d. to 5d. per pound f.o.b. Two of the factories mentioned have in quite recent years obtained for their cheese in the Home market the highly creditable price of £3 per